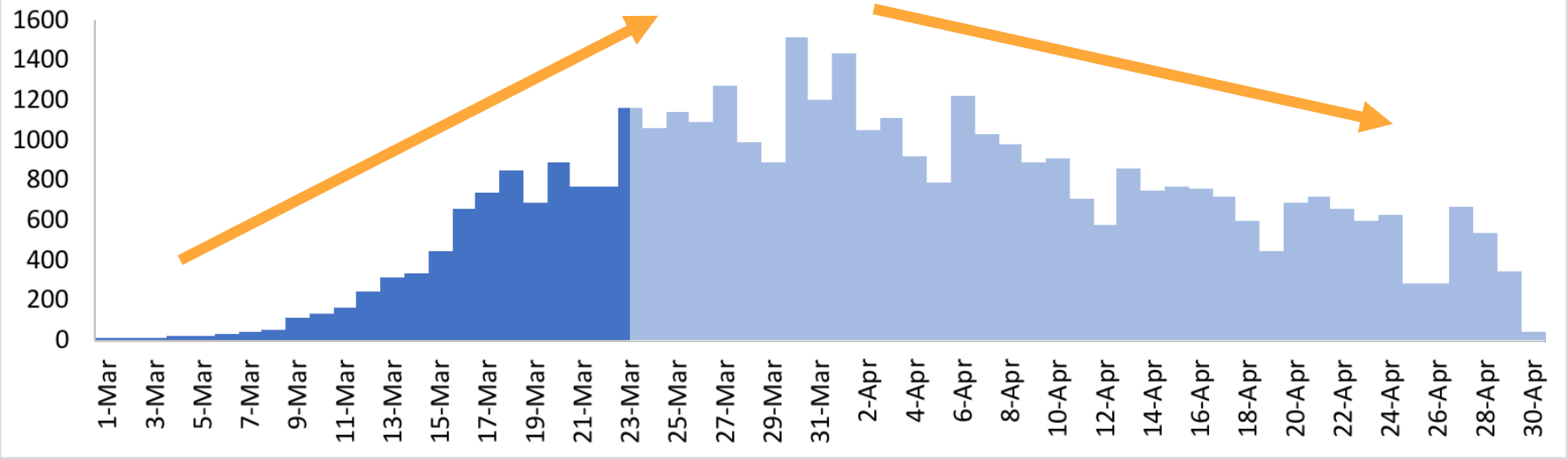
Epidemic overview & outlook

April 20, 2020

SCHOOL OF PUBLIC HEALTH
UNIVERSITY OF MICHIGAN

Flattening the curve

- At a state level, seeing a plateau and beginning of a decline, suggesting cautious optimism
- However, the regional picture varies



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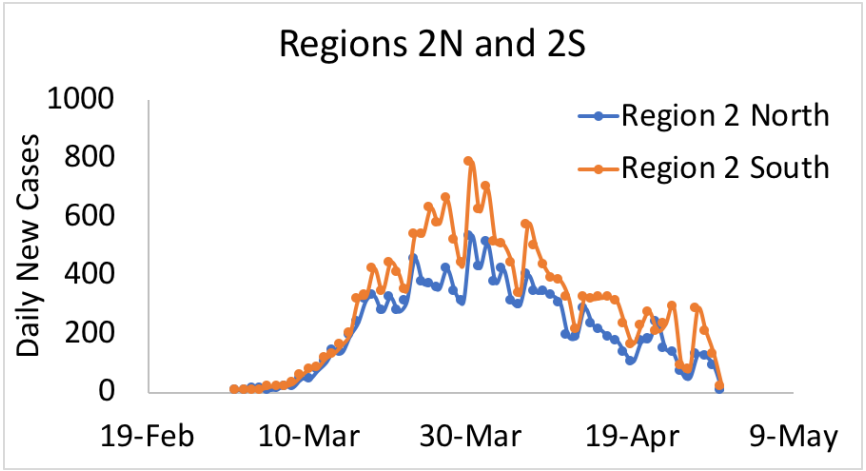
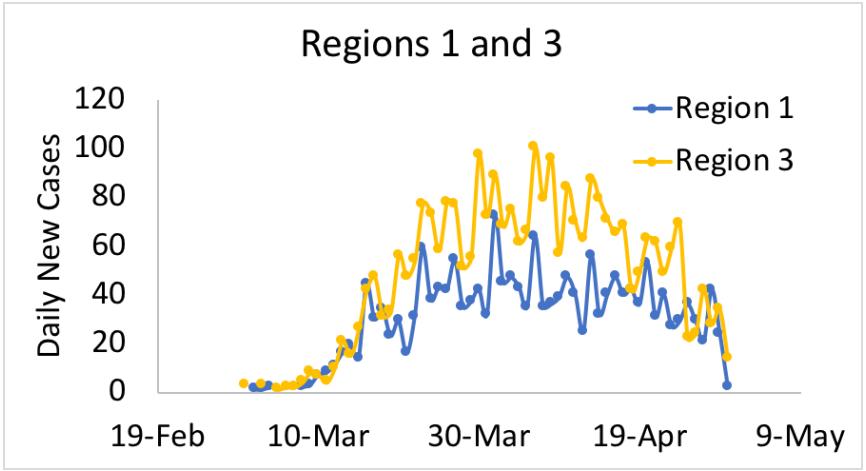
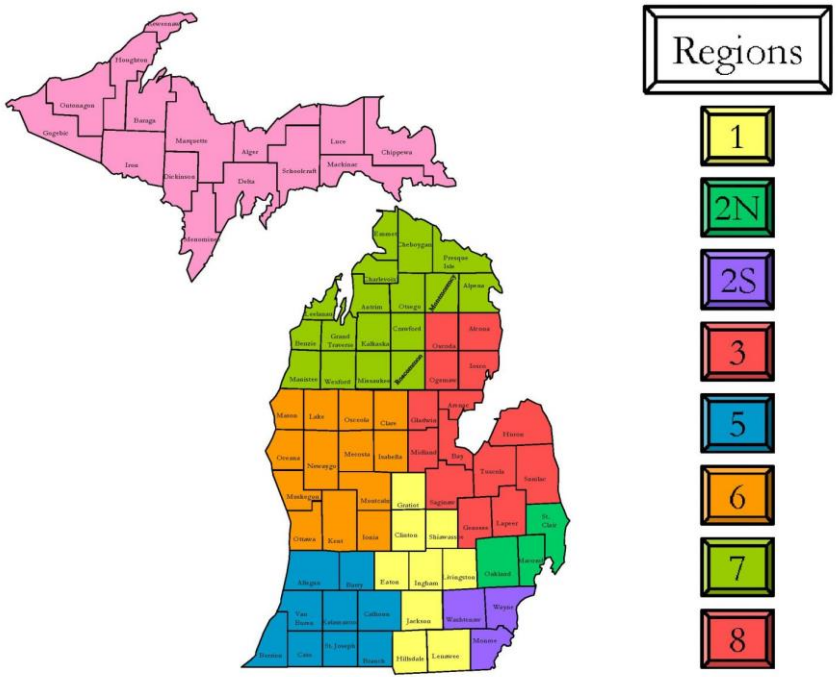
Some regions are seeing consistent declines







Map source: https://www.malph.org/state-michigan-health-assessment

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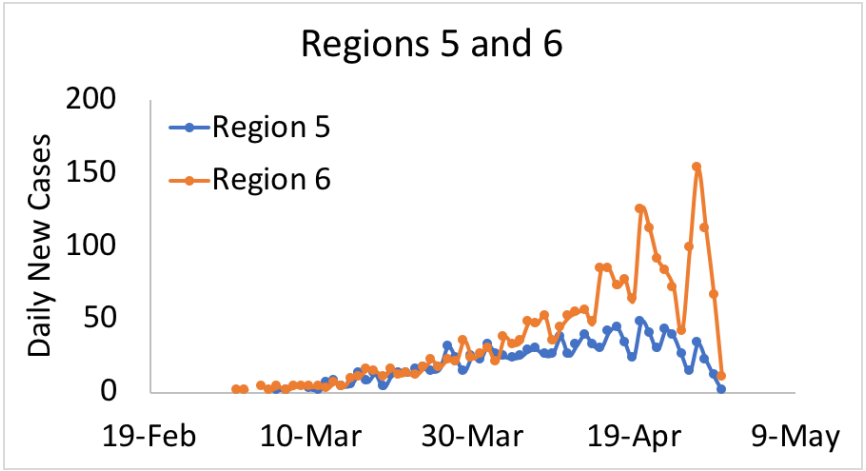
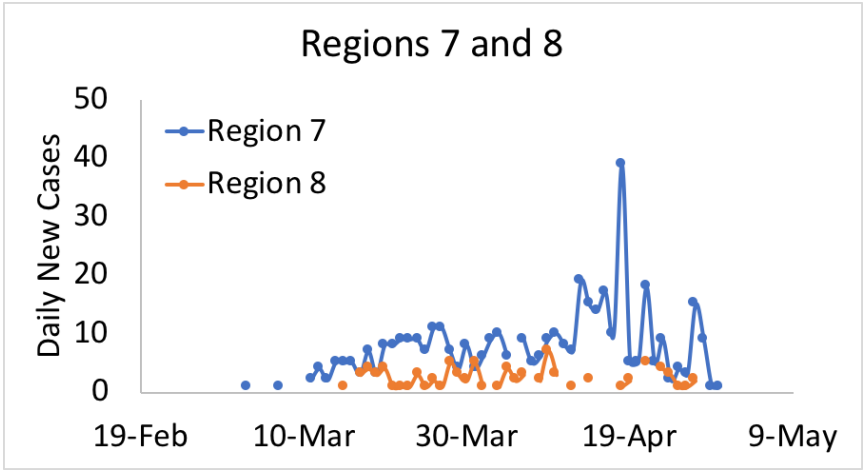
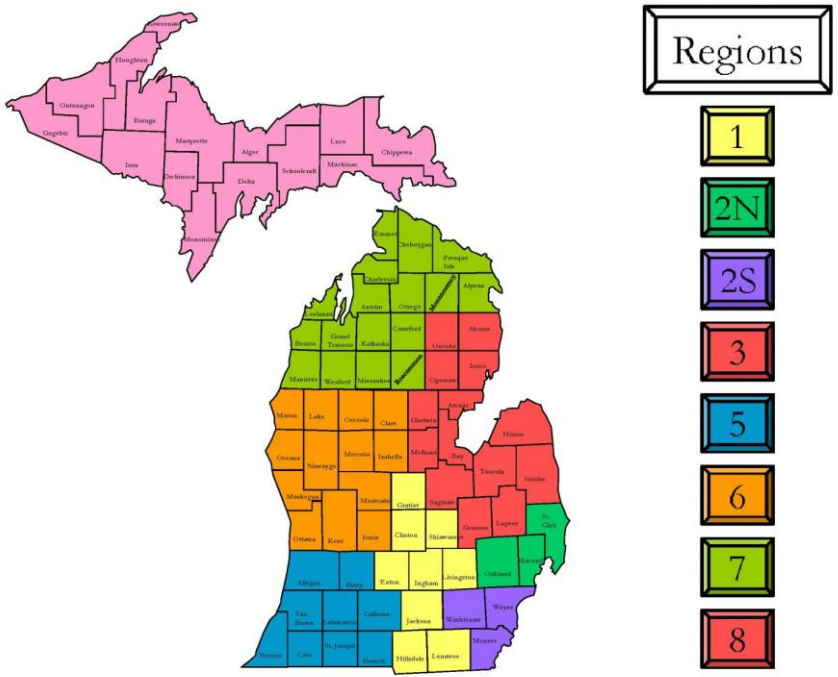




In other regions, the trend is more varied



Map source: https://www.malph.org/state-michigan-health-assessment

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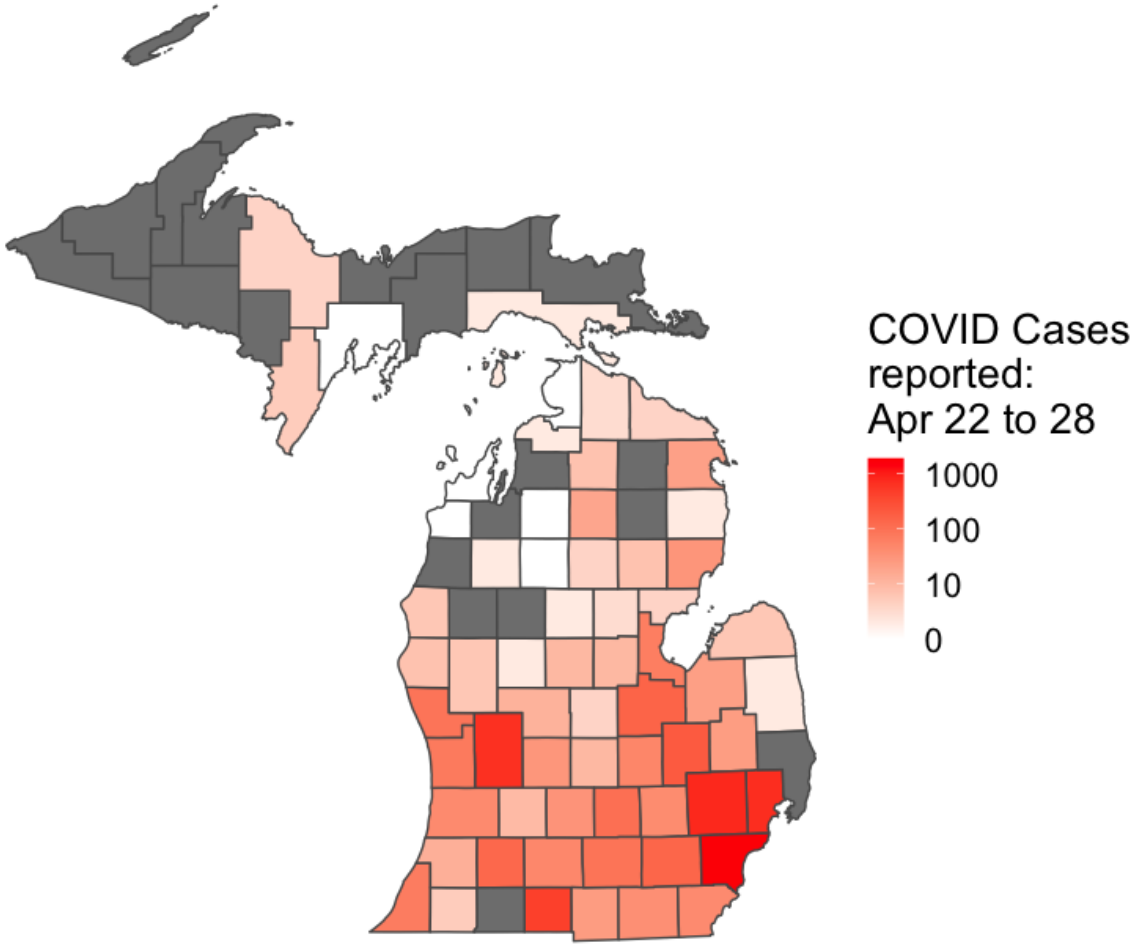
Case counts vary across the state



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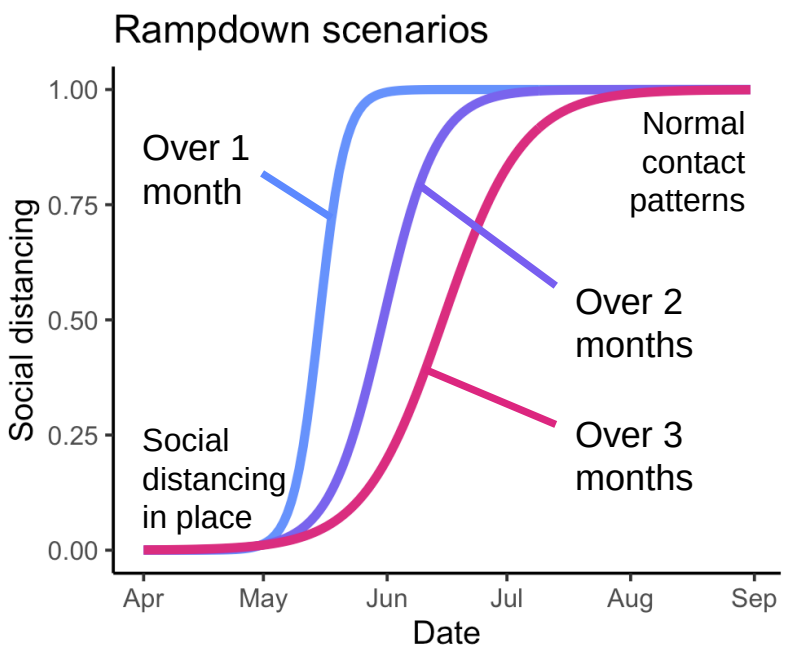
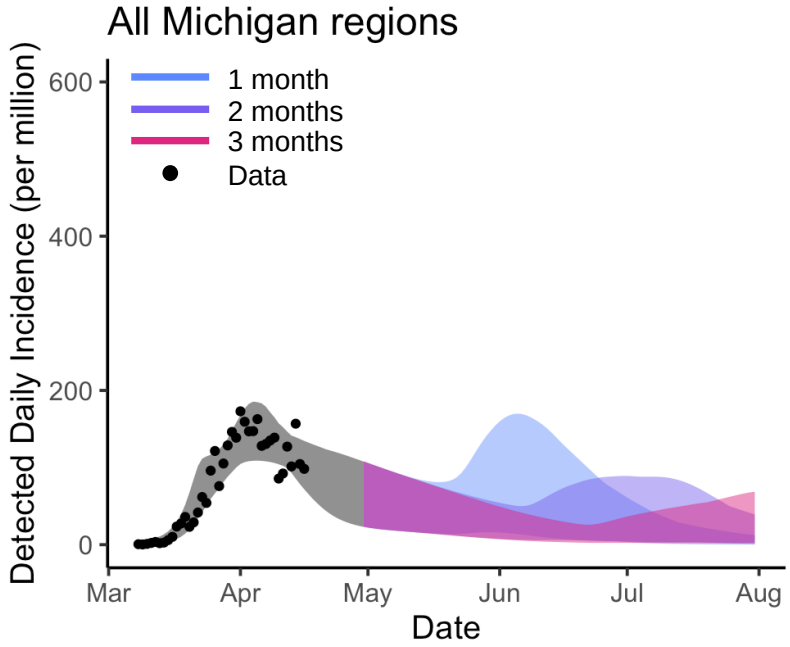
DRAFT

Epidemiological modeling scenarios for gradual lifting of social distancing – start 5/1





All 3 scenarios begin lifting social distancing on 5/1 and complete on 6/1, 7/1, or 8/1
Social distancing levels (corresponding to 0 in left plot) vary from simulation to simulation

Note these are preliminary results and are still in progress; simulations on the right were selected among 1000 simulations as illustrative but should not be interpreted as overall bounds

1. Model built by M. Eisenberg, A. Brouwer and the Epimath modeling group.

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Epidemic overview

- Overall trend shows declines, with some areas to watch
- A few counties are showing higher growth rates, with specific populations (e.g. nursing homes, prisons) and communities seeing spread of the disease
- Importance of continuing to improve testing and contact tracing

- Data and models underscore the importance of **a staged, gradual process for re-engagement** with **careful monitoring** to handle potential increases in epidemic spread

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Key indicators to monitor for reengagement

Epidemic spread indicators

1 Flatten the curve

- A. Symptom monitoring
- B. Case and death data
- C. Percent positivity
- D. Regional picture of transmission

Healthcare system capacity

2 Safely diagnose and treat patients

- A. Critical personnel
- B. Beds
- C. Ventilators
- D. PPE

Public health capacity

3 Testing and monitoring

- A. Testing capacity
- B. Contact tracing

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Appendix

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Epidemiological modeling scenarios to examine impact of lifting social distancing

- Model simulations in these scenarios show a **wide range of possible outcomes**, from a large 2nd peak to a small or no resurgence
- This range stems from the wide range of population immunity levels that are consistent with the data so far
- **Simulated potential second peaks vary by region**—regions that have seen few cases so far show wider range of possible peak sizes
- Simulations assume no additional response action is taken to mitigate a second peak if it occurs (i.e. does not account for actions taken to respond to and mitigate a second peak)
- Data and models underscore the importance of staged reengagement with **careful monitoring to handle potential increases** in epidemic spread

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